2

ORGANIZATION AND DEVELOPMENT

2.0 ORGANIZATION

Organization is a preplanned, orderly, methodical procedure to make an army out of rabble, or a football team from a flock of fumbling freshmen. First, however, you must have an idea, a theme, or a central thought line.

2.0.1 PREMISE

Any activity can be regarded as a data-gathering phase to acquire substantive information for a subsequent written effort. Conversely, any written effort can be regarded as the recorded documentation (or the documented record) of its foregoing activity. Thus, we are looking at the two like ends of the same municipal ferry boat.

2.0.2 APPLICATIONS

You can use all the theory from chapter 1 in *actual practice* right now. In performing these activities you should (1) learn the ways to *apply* the theory; (2) follow the construction of a prototype project from assignment to deadline; and (3) build your own draft document from your own assignment to deadline. Thus, by the end of this chapter, you should have constructed a rough first draft as a result of your effort.

First you must select a project for yourself to document, as if someone had assigned it to you. It is best if you take it from your job at hand or something else real and useful. A real assignment is best.

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Figure 2.0 is a schematic teaching aid that delineates all the steps and points in this procedure, and shows their interrelationship from start to product. All that will be detailed later in this chapter.

Begin at the bottom with the horizontal assignment (A) line (fig. 2.0). Some reasonable space above A is your deadline (D/L) (fig. 2.0). The space between A and D/L, time (T), is divided into five strata, or stages—the development periods. There are always five of those, and always in the same order. Although shown in Figure 2.0 as being equal (1/5, or 20%), *they never are*, since every project has its own life. The proportions may be different sizes but must total to 100%.

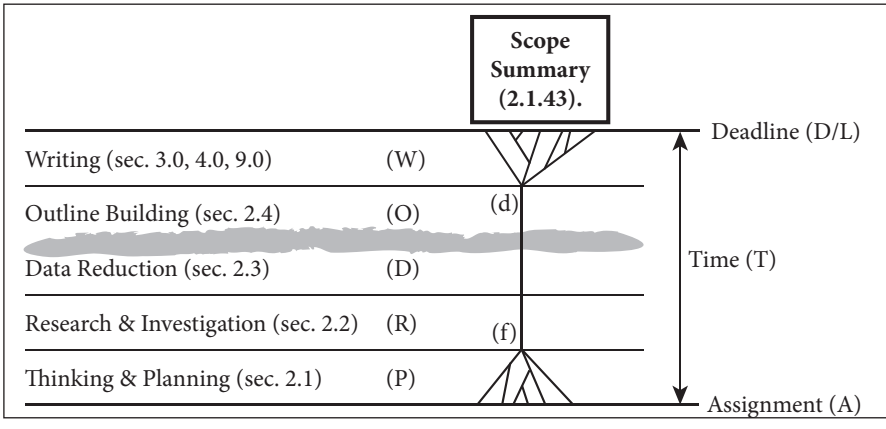
The stages, in order, are Thinking and Planning (P) (sec. 2.1); Research and Investigation (R) (sec. 2.2); Data Reduction (D) (sec. 2.3), blending (through a gray area) into Outline Building (O) (secs. 2.4–2.6), and Writing (W) (chaps. 3, 4, and 9). On the horizontal between P and R is focal point f, and directly above it on the line between O and W is the dispersion point d. All your findings in P are represented by root lines converging at focal point f. The communication grows as a single entity between f and d when it multifircates into whatever the written product becomes (chap. 9).

2.0.3 THE PROTOTYPE PROBLEM

The Federal Building at Foley Square in New York City is a forty-story bronze and glass tower personifying the U.S. government. It was built and is operated and maintained by the General Services Administration (GSA).

You are the building manager (BM), with the comparable status of a ship's captain. You arrive at your office one morning and your computer

FIGURE 2.0. ORGANIZATIONAL PROCEDURE



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greets you with this e-mail message over the signature of the "GSA Coordinator of Buildings":

> *Report to this office within three weeks on the economic feasibility of operating a chicken farm on the roof of the Federal Building in NYC.*

Unhinged, you request to be relieved of the assignment because you know nothing about chicken farming. GSA responds immediately:

> *You are not reading the assignment correctly. It is not about chicken farming, it is about economics. BM, surely you know about economics*?

You must read and *understand* every assignment thoroughly to be able to *undertake* it thoroughly. You then go to human resources in your building for help. Enter your consultant, I. You and I begin with Figure 2.0.

Figure 2.0 is a schematic guide to the text in the rest of this chapter. I designed it to depict and clarify the steps in building a document from assignment (A) to completion at deadline (D/L). The "communication growth tree" starts with the root lines you develop in the Thinking and Planning stage (P) (sec. 2.1). All the roots converge at focal point f on the line between P and the Research and Investigation stage (R) (sec. 2.2), where the "tree" grows up through the Data Reduction (D) (sec. 2.3) and Outline Building (O) stages (sec. 2.4) to dispersion point d, where it branches out into whatever the written product (chap. 3) becomes, to respond to A.

I repeat, although for clarity I show the five stages as equal sized (1/5, or 20% each), actually they hardly ever are. Every individual project is unique unto itself. A doctoral candidate in geotechnical engineering writing a thesis on foundations in varved clays may develop his P in two weeks; spend his academic year in the laboratory generating data, stage R; do his D and O stages in a month; and spend three months writing, W.

At the other extreme, a magazine writer may spend days developing an article, research it in two weeks, do an outline overnight, and write it all the next day. The diagram equality just makes the text easier to envision.

2.1 THINKING AND PLANNING (P)

Where to start, and how to go. Most engineering students were told in English 101 to start a report by confecting an outline, naturally from within the ken of their own knowledge; beef it out with researched information; and write. That *may have been* the right way then, but not *now*. That outmoded

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approach does *not* work realistically in today's working world. We can't eat archaic and still have it. You can't tell what you may have missed because you don't know what you don't know.

2.1.1 VIABILITY

Start by ascertaining if the *whole project*, not just your report, will actually work. If the holistic effort proves unviable, your report will be also. Don't waste your time.

In this case you check with the EPA people, who determine there is nothing in the project inimical to the vicinity's environment. Your *local* canvass shows a promising market for your product. Finally, the building's engineering design data reveal that the miniscule additional load poses no further strain on the total structure. Ergo, finding no *negating features,* you can say the project *is* viable, as will be your report; so proceed.

2.1.2 REASON FOR WRITING (FIG. 1.3, SEC. 1.4)

The reason(s) selected (sec. 2.1.21–2.1.26) predetermine the *use* your receiver will make of your effort, which, in turn, determines its useful longevity. You can write to inform, instruct, influence, control, criticize, or record.

2.1.21 INFORM

Yes (sec. 1.4.1). In effect, A says, "Give me information about . . . ," and you want to do that.

2.1.22 INSTRUCT

No (sec. 1.4.2). Think: If GSA wanted instructions for *operating* the chicken farm, A would have included "and give instructions for its operation." Go the extra mile, yes, but *don't* undertake big items *not* requested in A; you'll add 150% unnecessary work for yourself. Also, *if* GSA *wanted* such instructions, they would have gone to Cornell University's Department of Poultry Science, not to a BM versed in other areas.

2.1.23 INFLUENCE

Depends (sec. 1.4.3). Unless A specifically asks for an opinion, don't offer it. GSA requested facts, yet if the preponderance of evidence shows clearly it is a bad bet, you should *suggest* so.

2.1.24 CONTROL

No (sec. 1.4.4). You are not in a position to control what goes on at GSA headquarters.

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2.1.25 CRITICIZE

No (sec. 1.4.5). But if you harbor strong feelings based on the evidence at hand, you might try (sec. 2.1.23) subtly to influence (sec. 1.4.6).

2.1.26 TO RECORD

Yes. You want to go on record as having been responsive to A. Or if you should find some additional aspect, take credit and *responsibility* for it.

Now you have information, possibly influence, and to record, as root lines in P, your reasons for writing (sec. 2.1.2).

2.1.3 RECEIVER(S)

Section 1.5 precisely details your receiver levels, but you cannot take them at face value. Since you are able, do some inquiring to learn more about the target individuals. You may not always be able to do that, but it is worth the effort to try because each item discussed in this section is another root line in P (sec. 2.1).

2.1.31 APPARENT AUDIENCE (SEC. 1.5.1)

Since the GSA coordinator of buildings signature *appears* on A, *apparently* he becomes your *addressee of record*, but you have no certainty that he was the originator, or will be the only one to act on it; and there is only a 50% chance he may even see it. He is *not* your target.

2.1.32 REAL READER (SEC. 1.5.2)

Probing at GSA reveals that the signatory of A (the apparent reader) has three deputies. The third, born and raised on Maryland's Eastern Shore, knows nearly everything about chicken farming and the economics thereof. He was the originator of this notion and will adjudicate your report. He is your *real* audience. Your report must answer to both his level and to his needs and wants, all discussed in section 1.5.2.

2.1.33 INDIVIDUAL (SEC. 1.5.3)

Deputy three, your real audience, is an individual, as detailed in section 1.5.2 and 1.5.3.

2.1.34 MULTIPLE READERS (SEC. 1.5.4)

This does not apply in this project.

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2.1.35 PRIMARY READER (SEC. 1.5.5)

Although your report may pass through many hands, the focus must be on your *real* reader (sec. 2.1.32) with appendices targeted to *specific* secondary readers, *if* you need them.

2.1.36 SUBORDINATE (SECONDARY) READERS (SEC. 1.5.6)

Your inquiries at GSA reveal that the budget director is thoroughly involved in the fiscal aspects of this project, but has only marginal interest in the rest. To satisfy that requirement, you deal with the money section as with the other report sections, then you *add* a thoroughly detailed appendix addressed to the budget director as your *primary* receiver for that *specific* appendix only.

2.1.37

Background, education, position, and ability considerations for your *real* reader *only* become your next thoughts in determining your writing levels. Focusing your report on the real audience is essential; all others have to read as best they can. There is no strength in a one-size-fits-all report.

2.1.38

Surrounding conditions of the real reader, climate, weather, budget, politics, policy, personnel, and personal matters all exert some form of constraint or have an influence on your real reader's reaction to your report. Look into those considerations as best you can before you start. They are all root lines in P.

2.1.39

Knowing your real reader's knowledge datum will help you decide at the outset what he *needs* to know and what he *wants* to know from you. Consider all the foregoing material as you build your report.

2.1.4 MATERIAL SUBSTANCE (SEC. 1.3)

If I were reading this report instead of writing it, what would I want it to tell me? That is the question you must ask yourself now to enable a proper response to the charge in A. You have already determined *why* you are writing, and *to whom*, the two basic elements. Use both those factors to construct *what* you tell the *real* reader.

2.1.41 SUPERFICIAL PRERESEARCH

Attempting to make this report as useful as the real reader would like it, you approach the task from his position. You list as many questions as you think

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he might ask you if you were to interview him personally. Of course, that does happen on rare occasions, thus now you *act* in his behalf. There are times when your own knowledge of the subject is thin, thus you are actually asking questions in your *own*, and his, behalf.

There are two extremes to listing questions: First, you may be so steeped in the subject that you can't remember when you didn't know all there was to know about it. Then it becomes difficult to choose just how far back you go to reach level land without being simplistic or patronizing. You just need to use good judgment, or ask someone who knows, but less than you. The other extreme is when you know so little about a subject you don't even know what *kinds* of questions to ask. This is the point where you do *basic* research, not to gain specific detailed factual knowledge for the report content, but to acquire a sufficient patina of information to enable you to ask pertinent questions.

This is also the first of two chances (sec. 2.1.422) where you can find material you had not previously realized about the subject. Now you have enough basic facts to generate intelligent questions and start to build a preliminary outline.

2.1.42 PRELIMINARY (PROVISIONAL) OUTLINE

This is the point where you start building the preliminary structural skeleton of your document. This is also where you begin to see the things you didn't know you didn't know. Begin with a blank screen, or a blank pad of lined paper. Dismiss most other things from your mind. Then, think under the hat of your real reader.

2.1.421 QUESTIONS

As if you were he, inquire about what he'd need and what he'd want to know concerning the economics of operating a New York City rooftop chicken farm. As his surrogate, you start by compiling a list of random questions, one per line, no boundaries, no order, and maybe include a few as from subordinate readers. List the questions as they come to mind. Being a "city fellow," there are plenty questions you could ask.

If you think you might have asked the same question earlier on the list, don't go back through the list to check; that breaks your forward momentum. Just add it and move on; you'll have a chance to pick out those redundancies after the next step. Don't dawdle, because your project clock is ticking, but don't be too hasty, because this is the seeding stage for further growth. Carefully use good sense. Too few questions will result in gaps in the text; or you could choke to death on too many. Here, you have stopped at sixty-one listed questions.

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2.1.422 PRIMARY GENERIC SORT

Were I to dump a pile of miscellaneous small hardware on your desk and tell you to "do something useful with it,"[1] most probably you would sort the pieces by piling washers with washers, screws with screws, wing nuts with wing nuts, and so on until the original pile was dispersed into several smaller piles of items of *similar or like nature*. You do the same routine now with your pile of questions. You sort that list into smaller lists of questions of similar or like content.

N.B. (*not* a law, but a useful rule of thumb): *If you have about twenty-five questions, they would sort into two or three groups; about seventy-five questions would create five to eight groups of similar subtopic questions*. Since you have sixty-one questions, you set out eight blank sheets, allowing for the maximum sort. Here is where you catch those repetitions from the original compilation; keep the better and toss the other. Should you run onto a question that appears to fit into more than one group, put it into each list for now. You'll catch it later. Be sure all your questions are sorted. And, *no* catchall group. Your sixty-one have fallen into seven lists of similarly natured questions. Return the eighth, unused sheet to stock. Do not yet rearrange the questions in any group.

Look over each list individually. Switch any one question if it seems to fit better in another group.

The dust having settled, you now have seven condensed sheets of *primary* sorted questions for a new combined total of fifty-two questions. But two group sheets have only one question each. There is nothing wrong with having a one-question group, if indeed that one question is *unique*. A closer look shows that one of them would work in a larger group, and once moved into there, it seems to connote more material than an entry already there. Eliminate the weaker one, add the one from the solo group, and you have six groups. Repeating the process on the other single-entry sheet, it can be shoe-horned into a different, larger group, but there is a stronger item already there. You delete that question, thus the second single-item list is gone. Finally there are five groups; that fits the minimum recommended by the rule of thumb.

2.1.423 GROUP HEADINGS, PRINCIPAL MATTERS

Your project has now shaped to the point where you cease dealing with it holistically. You have five distinct lists of questions in no particular order. Within those collective lists lies the nucleus of your document. Your task now is to dig it out and process it into a finished, polished, presentable product.

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Deal with each of the five sheets one at a time. On any one sheet is a list of five or six questions related by a common idea. As you reread that list, the common thought will float to the top, thus the list literally will name itself. For this batch the group names become Chickens, Plant, Funding, Marketing, and Operations, not necessarily in that order, at f. Those five headings are for your report's main sections, or chapters; they are the *principal matters* for your contents and your keywords for information retrieval. All five of them must appear in your abstract (sec. 8.4.2). Do not yet arrange them into a fixed order, nor do you yet organize the questions within each group.

In several earlier paragraphs I cautioned that creating an outline from your own knowledge eliminates all unknown aspects. The constraint that you don't know what you don't know is liberated by the questions route. Being a city-bred person, you had a mental image of fowl at large in a barnyard. You had not the faintest idea of a *planned, commercial plant*. That discrepancy would have lessened your report, which would have required later serious patching. By taking the questions route, natural queries led to the revelation, and inclusion of the previously unknown but necessary section on Plant.

2.1.43 SCOPE SUMMARY

If you use the names of your not-yet-organized groups, add your reasons and your real reader, then you have the basic ingredients for building an outline, but you need a destination indicator. Just as the pin flag on the green shows the golfer at the tee 300 yards away where to drive his ball to the hole, *you* should have a target marker.

Your Scope Summary (SS) is that target guide. It is an aspiration, an end-result specification, a memorandum to yourself detailing where you want to be with your report when you are finished, and what you want it to tell. All those things become one in your SS. This is *different* from your abstract (sec. 8.4). That can only be written *after* your report is finished. Now, *you* write your SS *before* you go another step. Write the SS on a file card (fig. 2.1.43) so it will last the full project time. In 50± words you should be able to tell yourself what you hope your product will be. Include some form of the word(s) that indicate your reason(s) for writing. Figure 2.1.43 shows two excellent SSs, one from industry and one from government. The end products of both were equally superior and useful to their jobs.

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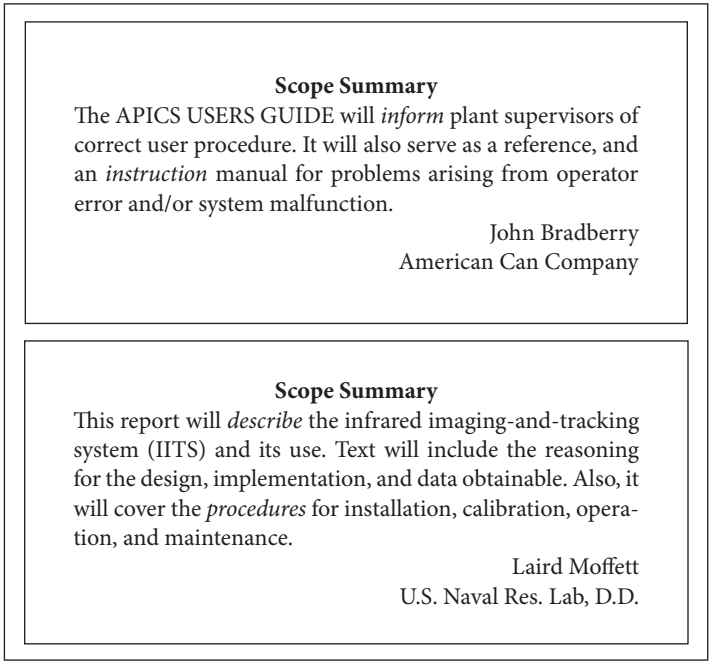
FIGURE 2.1.43. SAMPLE SCOPE SUMMARY CARDS


Scope Summary
The APICS USERS GUIDE will *inform* plant supervisors of correct user procedure. It will also serve as a reference, and an *instruction* manual for problems arising from operator error and/or system malfunction.
John Bradberry
American Can Company
Scope Summary
This report will *describe* the infrared imaging-and-tracking system (IITS) and its use. Text will include the reasoning for the design, implementation, and data obtainable. Also, it will cover the *procedures* for installation, calibration, operation, and maintenance.
Laird Moffett
U.S. Naval Res. Lab, D.D.

Your SS is your navigating guide during the entire project, yet it never appears per se in the document. The sole exception to that rule is: If you write the SS skillfully, then either as it stands, or if you change one or two words, it can become an excellent opening (introductory) paragraph for the document, written in the *present* tense, of course.

With that in mind, take another look at Figure 2.1.43 to see how right that notion can be. It may spare you some anguish when you actually write, at W.

2.1.44 PASS KEY TO BUSY PROSPECTS

Here is another positive use for your SS skill (secs. 13.5.1 and 13.5.2). Early in my career I was a sales engineer for a portable steam generator manufacturer. I applied the generators to be mounted on the counterweight to make pile-driving rigs self-contained. It was difficult as a "stranger" to get in to explain that innovation to top people or purchasing agents at construction firms. On the blank backs of my calling cards, using the SS technique, I hand lettered in fewer than fifty words the benefits of that combination; it was easy for a busy executive to read. Most times that gained me entrance; many times it resulted in sales.

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2.2 RESEARCH (INVESTIGATION), R

You could not have gotten this far in college or the professional working world without having learned early on to delve into and use new information from research. Thus, I shall not presume upon your intellect with that rudimentary drill. But I *can* impart several serious suggestions that will make your research, (stage R) in this system more efficient.

When you've gotten all those ingredient root lines (sec. 2.1.43) focused at point f, you have completed your Thinking and Planning stage, P. Now, guided by your SS, your activity "tree" line grows toward dispersion point d.

Plan and proceed with investigating to acquire all available information and data to fill out your outline structure.

2.2.1 STATIC RESEARCH

Pore over catalogs, indices, data banks, Internet search engines, and libraries. Make use of the observations of others.

2.2.2 DYNAMIC RESEARCH

Interview people, and get out into the field to make *your own* observations.

2.2.3 ORIGINAL RESEARCH

When neither static nor dynamic research yields the information you seek, if the point is not vital to the end result, just mention it (so it is not ignored) and move on. If it *is* vital and there is no available material, then make a small similar project of the item in question. Use the results as an inset in the proper place, if it is not too voluminous, or put that package into the appendix. The late author Studs Turkel, in compiling his nonfiction books, said, "Curiosity killed a cat, but I'm no cat!"

2.2.4 ETHICS VERSUS ENTERPRISE

Use whatever clever above-board methods you can conjure to get material, but do not use fallacious or improprietous means.

2.2.5 AVOID "ONE-STOP SHOPPING"

There is no single source, generally, for input material (except in the unique case of a single subject in a dedicated environment). For this chicken farm project, you have interviewed a senior Department of Agriculture county agent who could answer knowledgeably all your questions about chickens and plants perfectly, yet in *far* too much detail. However, he is a poor source for *good* information on funding or marketing. If you can, seek *only* basic root sources (sec. 2.3.3).

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2.2.6 PREPARATION FOR RESEARCH (STAGE R)

You now have five lists of questions and your SS. The *answers* to those categorized-but-not-further-organized questions will provide the material substance of your report. Go out and get them, but *first* set yourself a research plan for where to find your static and dynamic answers. Allow yourself a proper proportion of time (T) to get what you need before it eats into the time you will need for D, O, and W to be finished by D/L. Try to set your daily travels into a paternoster routing to eliminate recrossing or backtracking. Do not research one whole list at a time, nor prioritize, nor organize the listed questions now. Try to get as many answers as you can across the board at every stop.

Sometimes you will get a variety of answers to one question. Do not take them all, but use your SS as a guide to which of the choices will fit best into your project's line of march. When you get an answer, cross out (but don't obliterate) the listed question. Do not destroy the used question lists. Put every answer on its *own sheet of paper*. Paper is cheap, confusion isn't. Mark every answer sheet with a *keyword* or *phrase* that best describes what is on that sheet or graphic. En route you will acquire photos, sketches, magazine article tear sheets, computer printouts, and other graphics. Mark them with *keywords* also.

When I devised this system I'd toss every marked answer sheet into a briefcase. When R was finished, I'd waste valuable time playing a post office-type routine sorting the answer sheets into (in this case) their five piles, then writing an inventory list of each pile. Quickly I thought of a better way: Start each R phase with (here five) empty blank 10" × 12" mailing envelopes. In large letters, mark each envelope across its top with the name of one question group list. Then, as you acquire every new sheet or graphic, *marked with a keyword or phrase*, toss it into its appropriate envelope and list it on the envelope face under the correct group name. The envelope front then becomes an *inventory face sheet*. Thus as-you-go instant sorting and inventorying.

My computerwise amanuensis, Elaine Guidero, suggests this computer-based alternative to the envelopes with face sheets:

> For graphics and material in electronic form, design a hierarchy of folders on your computer: a folder for the entire project; then subfolders for each group heading. Those subfolders equate to the envelopes just described.
>
> Place each research-found item into its appropriate subfolder. Add a text file for comments or further information. Annotate each folder's text file with references to the specific entered item or

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graphic. The folder with attendant text file serves as a summary of the folder contents; thus as your face sheet.

If your documents are in programs with annotation capabilities, use them. Another way to keep track of comments or of multiple files is to use a citation management program (EndNote®, for instance), or a wiki-based Web site or service.

Acquire as many answers to your listed questions as your resourceful diligence will beget; you won't get them all.

Budget your R time with reasonable judgment (as with everything else in life). You are done with stage R; on to D.

(That system has worked successfully for me in authoring four books and as the editor of ninety-one volumes of Practical Construction Guides for four major publishers, among other items. The American Society of Civil Engineers named me the recipient of its Peurifoy Construction Research Award in 2001 for using it successfully.)

2.3 DATA REDUCTION AND DISTILLATION, D

You are back in your office with five envelopes, replete with gleaned information in response to your five lists of questions. Your *full report content* is in those envelopes, in its *most primordial form*. You will evolve that material substance from the original disarray into organization via these stage D steps:

2.3.1

Working with full envelopes is inconveniently clumsy, in addition to the risk of losing material. Photocopy all five marked envelope fronts to give yourself five manageable inventory face sheets, the lists of all the available material. Immediately store the full envelopes in a safe, cool, dry place. You will need them when you begin to write, at point d. File away the crossed-off lists of questions for later use (sec. 2.3.36 and sec. 10.2). Those five inventory face sheets are actually your complete report. All you need to do now is organize them into proper sequence and fill in researched details.

2.3.2 ESTABLISH PRIMARY SORT MAJOR HEADINGS

Lay out the five inventory face sheets on your desk in the random order in which they flop. Left to right that might be Chickens, Funds, Operations, Marketing, Plant. That sequence does not appear to answer the charge of A nor hit the mark of SS. Shuffle again, maybe in descending order of importance:

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Marketing, Funds, Chickens, Operations, Plant. Still no go. Try chronological order: Funds, Plant, Chickens, Operations, Marketing. That arrangement answers A, according to SS, because it is both *chronological* and *logical*.

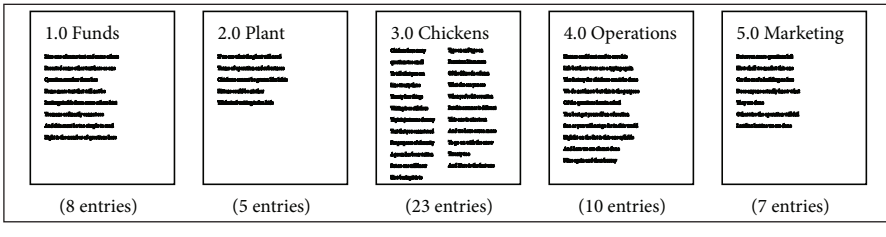
In dealing with the federal government you need an encumbrance in front, *Funds*. With those Funds, you build a *Plant*, you populate it with *Chickens*, and *Operate* a farm. Then you *Market* the product. If over a given period you can sell for *more* than your Plant amortization and your Operating costs, you show a profit, and the notion is *economically feasible*, your objective.

Number your inventory face sheets with whole Arabic numbers left of the first decimal point (sec. 2.4): 1.0 Funds, 2.0 Plant, 3.0 Chickens, 4.0 Operations, 5.0 Marketing, your primary sort.

2.3.3 SECONDARY AND LESSER SORTS

From your primary sort (sec. 2.3.2), your inventory face sheet layout, *still unsorted*, should look like Figure 2.3.3. The wavy lines simulate the key thought (word or phrase), now ready to be sorted and arranged into an outline. Look at each sheet list with relation to all the rest. Now perhaps some entries need to be consolidated within their own group, or moved to a more relevant group. Use a critical eye; your reasonable judgment and your SS should guide you to the needed amount of available inventoried information to answer the charge in A. As the quantity of items now stands, 1.0 Funds is OK; 2.0 Plant is not: insufficient information. Return to your question sheet (sec. 2.3.1); obviously you were not able to find responses to most of your questions. Go out to get some more answers. In 3.0 Chickens, you have far too much material (sec. 2.2.5) in relation to the other groups. Carefully prune many of the trivial, less-important listed items, your shaping being guided by your SS. 4.0 Operations, like 1.0, is OK, as is 5.0 Marketing. You will find much more about this balancing act in chapter 10. But *wait*, don't jump ahead to it just yet, for now *stay* with this process.

FIGURE 2.3.3. INVENTORY FACE SHEET (UNSORTED)



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Because each sheet is a separate report section (chapter) and has a life of its own, you deal with each individually (and not necessarily in rotation). Arrange and develop each sheet in the same way, however. For this project procedure, you choose to begin with 5.0 Marketing.

2.4 THE DECIMAL-NUMERIC INDEXING SYSTEM

Today we live in a digital world, marked entirely by sequences and combinations of Arabic numerals. Time, speed, dates, temperature, blood pressure, global position, etc., are all noted by numbers, as is contemporary technical and administrative writing.

As late as the mid-20th century, most instructors of English composition on all levels taught that outlines are organized in the so-called Harvard system. In that (generally, not always), ideas are indicated in descending order of importance: principal matters, by Roman numerals (and if you do that, why not be consistent and write the text in Latin?); secondary sort, by capital letters; tertiary, by Arabic numerals; quaternary, by lowercase letters; and if needed, further minutiae indicated by lowercase Roman numerals. (Actually, I have seen some extensive old scientific scripts that used Greek letters.)

The urgency in pragmatic technology demanded by World War II had neither time nor patience for old classic indices. The simple, clear directness and convenience of Arabic digits made sequential numeric indexing the system of universal choice over other inconsistent modes. Really, "8.5.433" is easier to read and use than, "VIII, E, 4, c, iii," especially if you seek a cross-index item while doing a titration.

2.4.1 ADVANTAGES OF THE DECIMAL-NUMERIC WAY

In Figure 2.4.1, the right side is the outline for a proposal at a Brooklyn public service agency, properly indexed by the numbers. The left side shows what the same outline would look like in the Harvard (or any other mixed character) system. For instance, to find a reference, "2," would that be the "2" in II A? Or in II B? Might "a" be the "a" in II C 2? Or in II B 3?

In a corporate setting, using the decimal-numeric way, you can parcel out four separate parts of a large document to be written simultaneously by four different groups and keep track of the pages until final assembly for pagination. And should some mishap scatter the stack of unnumbered papers, they can be recompiled easily by following the decimal index numbers, which would be painstakingly difficult in any other system.

Once you have developed a firm numbered outline, you do not have to commence writing at 1.0. This method allows you to start writing anywhere

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FIGURE 2.4.1. COMPARISON OF INDEXING SYSTEMS: HARVARD AND DECIMAL-NUMERIC

HARVARD (Archaic)	DECIMAL-NUMERIC (Current)
I. PREAMBLE	1.0 PREAMBLE
A.	1.1 Motivation
1.	1.1.1 Sponsors
II. COMMUNITY	2.0 COMMUNITY LIAISON
A.	2.1 Program Objectives
1.	2.1.1 Immediate
2.	2.1.2 Long Range
B.	2.2 Program Organization
1.	2.2.1 Steering Committee
2.	2.2.2 Community Boards
3.	2.2.3 Steering Committee Staff
a.	2.2.31 Executive Director
b.	2.2.32 Community Liaison & Public Information Company
c.	2.2.33 Local Area Planning & Design Teams
C.	2.3 Program Functions
1.	2.3.1 Community Liaison
2.	2.3.2 Public Information
a.	2.3.21 Press
b.	2.3.22 Radio & TV
III. SUMMARY	3.0 SUMMARY
A.	3.1 For Public
B.	3.2 For Sponsor

you feel comfortable (sec. 3.2) and file the finished parcels in sequence. Because the decimal-numeric system provides every entry a specific place, it is computer friendly, which is why most nonfiction publishers prefer it.

2.4.2

It is easy to go astray in other systems. Lack of early enlightenment, unwillingness to change, or plain laziness can lead to confusion in other systems, creating misunderstanding or misinterpretation. Figure 2.4.2 is a good example of the many ways to make a bad impression in any reader's mind. The sample is right from the engineering dean's office at a prominent university. It is part of a memorandum about an award. The outline is fraught

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FIGURE 2.4.2. HOW THINGS CAN GO WRONG

4.0 ~~IV~~. Award
- *4.1* ~~a~~. suitable inscribed certificate or plaque
- *4.2* ~~b~~. cash prize
- *4.3* ~~c~~. subscription to *Scientific American*
- *4.4* ~~d~~. expense paid trip for one-day seminar

5.0 ~~V~~. Society responsibility
- *5.1* ~~1~~. local school contact and selection
- *5.2* ~~2~~. local media contact, with assistance
- *5.3* ~~3~~. arrangement and presentation of award
- *5.4* ~~4~~. coat of local activities
- *5.5* ~~5~~. help fund awards, if more than certificates

6.0 ~~VI~~. College responsibility
- *6.1* ~~A~~. provide school and school personnel
- *6.2* ~~B~~. prepare selection and procedural guidelines
- *6.3* ~~C~~. prepare certificates and/or other awards
- *6.4* ~~D~~. help initiate news release
- *6.5* ~~E~~. help fund awards if more than certificates

with errors of concept, indexing, and indentation. The columnar position of a notation has equal value with the notation.

Figure 2.4.2 shows the memo as it was issued, in standard type font; my edits are in *italics*. The difference is clear. If the original indexing symbols were correct, their columnar left marginal position would be wrong. In 4.0 (IV), the four entries, marked in lowercase letters, would belong in the fourth column, after material from an "A" and a "1." In 5.0 (V), those five items marked by Arabic numerals should indicate a third rule order and belong in the third indent after material in "A." In 6.0 (VI), the capital letter postings are incorrectly indicated, but in the proper columnar order. None of that confusion would have occurred if the postings I show in italics had been used. Things like that never happen when using the decimal-numeric way.

2.5 OUTLINE BUILDING

Another look at Figure 2.0 shows the separation between any two stages from P to W as a definitive line indicating a definite change of activity. That is *not* so in the one case between D and O. Not a printing smudge, that gray area conveys the notion of a gradual activity transformation: What begins as Data Distillation (D) metamorphoses to Outline Building (O), a smooth

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transition to enable one continuous process. This is your last chance to reshuffle any entity (key thought) to another place where it might be more effective in response to A. Do all this with great care; here is where your text body emerges.

2.5.1 THE SUBORDINATED SORTS

When you started this project (sec. 2.1.421) you accumulated an open list of questions about this subject toward being responsive to A. To break out from the confines of your own limited knowledge, you did *not* begin by listing possible categories to fill in. Instead you had the chance to ask unlimited questions to shake out facts you didn't know you didn't know. After collecting a reasonable number of questions (sec. 2.1.422), you sorted them into groups of like nature, then watched the category group titles rise from the commonality of those questions. That enabled you to find Plant, a group previously unrealized.

Now that you are past seeking additional possibilities, the exact opposite occurs in dealing with the *answer* face sheets. Here you have a finite number of facts in known subgroups, thus you may add *inert umbrella headings* as in-line thought name tags. Those umbrella headings do not add meat to the matter; being *inert*, they aid in achieving mellifluous movement.

2.5.2 OUTLINE DETAILING

The entire section 2.4 justifies the decimal-numeric system as the logical, sensible, practical method for organizing any writing effort. Section 2.5.1 explains the value of adding *inert umbrella headings* at this point in the project, identifying and packaging listed factual entries. Realize that what you do with any one face sheet, you must do equally, one group at a time, to all other face sheets. Closest at hand, you start with Marketing (fig. 2.3.3); that sheet has seven listed items.

5.0 *Marketing*
eggs locally
eggs trade
fertilizer
bedding feathers
market area eggs
chickens
decoration feathers

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You must rearrange this list for it to tell of its economic significance; add *inert umbrella heads*. To do that sensibly you choose to sort them according to things you can sell. Your prime commodity is *eggs*, the basic reason for this assignment. Next is *chickens*. According to the principal poultry pundits at Cornell University Animal Science, an average white leghorn hen's natural life span is eight to ten years, but menopause occurs at about age four, rendering the hen no longer productive. Since they don't make good pets, you sell them to Kentucky Fried Chicken. You lump the small percentage of other items into *byproducts*. Thus, rearranging the seven entries from the face sheet list in section 2.5.2 and *heading* them, your outline develops into a useable:

5.0 *Marketing*
5.1 *Eggs*
  5.1.1 Local sales
  5.1.2 Trade area
5.2 *Chickens*
  5.2.1 Meat
5.3 *Byproducts*
  5.3.1 *Feathers*
    5.3.11 Bedding
    5.3.12 Decoration
  5.3.2 *Litter*
    5.3.21 Fertilizer

2.5.3 SINGLE-ENTRY NOTATION

In that completed outline of 5.2 Chickens, there is only one subentry, 5.2.1 Meat. Some traditional teachers of English still cling to the notion that "If you don't have a 'b' then you may not have a lone 'a.'" No! There is nothing wrong with having a single subentry if that is where the item fits into the flow of events. Raising it a notch to conform to that unfounded rule erroneously puts it into a higher classification.

2.6 RECAPITULATION, OUTLINE RECASTING, AND VARIATIONS

You have just experienced the troika of applying the theory of chapter 1, developing a hypothetical assignment, and organizing your own report, all in parallel time. Here now is the evolution of a genuine project that

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demonstrates the flexibility this system affords for accomplishing differently targeted documents using the same acquired source material.

This next example is sanitized to preserve the propriety and privacy of all involved. It is nonetheless genuine. A local public utility wanted to investigate a recommended system's potential for improving the house operation. J. F. O'Hagan was assigned the task.

2.6.1

Having had this instruction, he knew the route well. O'Hagan noted his specific prime reason for writing: *To provide material to decide to use DART*; generically, *Information*. His second reason: *To document the task was completed*; generically, *Record*.

2.6.2

O'Hagan clearly defined his readers: (1) the *apparent* reader, the vice president in charge, the source of the assignment, and the addressee of record, is *archivistically inclined:* he will read, but not evaluate, the report; (2) the *real* audience, the operational supervisor, is an *action-oriented* person who will read and implement the report; (3) the auditor is a *secondary* reader who is interested only in the *fiscal aspects*.

2.6.3

Determining logically from his reasons and reader lists, O'Hagan titled his report "Design and Assignment by Remote Terminal, DART."

2.6.4

To decide what about DART all audience levels would need and want to know, he put himself into all readers' shoes, then generated a list of 24 random questions they might ask. Then he shook those 24 questions into groups of similar or like nature. That sorting resulted in four groups of kindred queries. Their likeness determined their group names as Advantages, Document, Makeup, and Immediate Considerations.

2.6.5

As an aspiration and a target marker for direction, O'Hagan wrote himself an SS (fig. 2.6.5) that he later used with slight modifications as the first paragraph of his final report text.

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FIGURE 2.6.5. SCOPE SUMMARY PARAGRAPH

SCOPE SUMMARY

Can the Facility Assignment Bureau's Operation be improved physically and economically by employing a system of Design and Assignment by Remote Terminal? Data on all aspects of the suggested system makeup, advantages, effect on the present system will be collected, analyzed, and studied to enable an informed decision.

2.6.6

Planning, then going, he read, observed, and interviewed to get his questions answered fully. As he went, he sorted answer material into four labeled 10" × 12" envelopes and noted each entry on its envelope front.

He returned to his office, photocopied the envelope fronts to yield workable *inventory face sheets* (fig. 2.6.6), then stored the full envelopes safely, out of the way.

FIGURE 2.6.6. INVENTORY FACT SHEETS

Advantages

Real costs
Paper costs
Time

Document

Proofreading
Production
Reproduction
Local distribution
Company distribution
In-house distribution
Binding
Reading
Graphics
Text

Makeup

F.A.B.O. Plant
F.A.B.O. General description
F.A.B.O. Equipment
Definition
Implementation

Immediate Concerns

Control functions in S.O.P.
B.S.P. standard budget
B.S.P. standard schedule
Impact on present system
Pics control
Pics record

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2.6.7 PRIMARY SORT POSSIBILITIES

To build his outline from the material on hand, O'Hagan used the four *inventory face sheets* (fig. 2.6.6), his SS (fig. 2.6.5), and his reader priority note (sec. 2.6.2) to set a suitable firm order.

If he were targeting the *secondary* reader (finance interest only):

1.0 Advantages
2.0 Immediate Concerns
3.0 Document
4.0 Makeup. *Not Applicable*

If he were addressing the *apparent* audience (archivistic interest):

1.0 Document
2.0 Makeup
3.0 Immediate Concerns
4.0 Advantages. *Not Applicable*

If he were addressing his action-oriented *real* reader:

1.0 Makeup
2.0 Advantages
3.0 Immediate Concerns
4.0 Document. *The choice*

All of section 1.5 goes into detail about why the reader is (after "why write?") the second basic consideration of every document project. This section has just illustrated some possible variations for arranging the available material at hand to capture and hold a target reader.

2.6.8 SECONDARY AND LESSER OUTLINE SORTS

Once his primary order was established, O'Hagan sorted the entries within each, one sheet at a time.

2.6.81

Starting with 1.0, *Makeup* (fig. 2.6.6) has five entries. Logically, *Definition* seemed best to start, and definitely *Implementation* would close it with "teeth." The three remaining notations all deal with FABO, but *no* need to make an inert umbrella heading because one of those three was the *General Description,*

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FABO. Subordinated to that was the *Plant*, housing the operation. The *Equipment* within it was further subordinated. He used all five entries in this outline:

1.0 Makeup
1.1 Definition
1.2 General Description, FABO
  1.2.1 Plant
    1.2.11 Equipment

2.6.82

His second face sheet, *Advantages* (fig. 2.6.6), had three entries, of which *Time* was the main idea. The other two were about *Costs*; thus, he inserted a combining inert umbrella heading under which he listed *Paper* and *Real* as equal weight notations. This time three notations yielded four entries:

2.0 Advantages
2.1 Time
2.2 Costs
  2.2.1 Paper
  2.2.2 Real

2.6.83

Using the *same* logical procedure to organize the two remaining face sheets and combining all four sections, O'Hagan had his firm outline:

3.0 Immediate Considerations
3.1 Impact on Present Systems
  3.1.1 Plug-In Coordinator
    3.1.11 Control
    3.1.12 Record
  3.1.2 Control Functions in Practice
3.2 Standardizing via Utility System Practices
  3.2.1 Budget
  3.2.2 Schedule
4.0 Document
4.1 Document Description
  4.1.1 Reading
  4.1.2 Text
  4.1.3 Graphics

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4.2 Production
4.2.1 Reproduction
4.2.11 Proofreading
4.2.2 Binding
4.3 Distribution
4.3.1 In-house
4.3.2 Local

From that he wrote his successful report, which was responsive to the charge in A and met the aspiration of his SS.

To see another subject's fully formatted complete report, see appendix 9.2.1.

2.6.9 DETERMINING ORDERS OF SUBORDINATION

In section 2.6.81, the order of the outline was set because the principal topic was *Makeup*. In that, *FABO* occurred in a reinforced concrete *Plant* building, where a piece of mobile *Equipment* functioned. Their outline positions were determined by their interrelations on the ground. That was the case for this report, but not always.

2.6.91

For instance, consider an oil refinery as your subject. In that, there is a catalytic "cracker," a huge, stand-alone, outside piece of *Equipment*. Hung onto it, a series of catwalks, inspection ladders, and lighting fixtures are its *Plant*. That outline (last two items now reversed) would appear as

1.2 Catalytic "cracker"
1.2.1 Equipment
1.2.11 Plant

2.6.92

Another variation based on interrelationship involves an automotive assembly facility. The plant building was designed to house the machinery; and that was designed simultaneously to fit the building. That report outline would be

1.2 Assembly Facility
1.2.1 Plant
1.2.2 Equipment

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Again, order is determined by the facts in situ and facilitated by the logical flexibility of this system.

2.7

In this long chapter 2, I've laid out step by step the applied theory, a hypothetical project, and two real project developments, each evolved from the Assignment (A) to Dispersion Point d, the start of the Writing stage (W). Now you should have at hand for your own document your *reason(s)* for writing, to set the tone; *targeted audience(s)*, to set the levels; *Scope Summary*, to define your goal; *researched material* (in envelopes or on your computer) to provide the substance; and a *firm outline*, your actual report without the details. With those five items you have all you need to write your report. And you will write confidently after having worked through chapters 3, 4, and 9. When your draft is finished, chapters 5, 6, 7, and 8 will provide you with the "cheese on the spaghetti" to make your document polished and professional. Complete two or three more projects to become *comfortable* with this system. Take your time with it: "Haste, haste has no blessing."[2] Become familiar with the finer facets. There are no prizes for getting there first. The trick is getting there *with ease*.

Then start with chapter 10 and work your way on to the book's end. Confidently, with those acquired, honed, and polished communication skills, you should be worth thousands of dollars more per year to your client or employer, and to yourself.

WHERE THE NEEDLE GOES, THE THREAD WILL FOLLOW.[3]

NOTES

1. Once, one young man in Baltimore responded, "I'd throw it on the floor."
2. Swahili proverb.
3. Old Russian proverb.

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